REMARKS

Favorable reconsideration is respectfully requested in view of the above amendments and following remarks. Claims 11, 12, 14, 15, and 18-20 have been amended. The amendment to claims 11 and 18 is supported by the original disclosure, for example by original claim 13 and the third full paragraph on page 2 of the present specification. Claims 12, 15, and 20 have been amended editorially. Claim 14 has been rewritten into independent form, including the features of claim 11. The amendment to claim 19 includes limitations from claim 20, and is also supported by the original disclosure, for example, under "Evaluation of the alginate oligosaccharide on Alzheimer's disease (AD)" on pages 10-15, and under "Study of 6-mer on diabetes models" on pages 18-19 of the specification. No new matter has been added. Claims 11-20 are pending.

Applicants appreciate the Examiner's consideration that claims 14-17 are allowable, and respectfully request entry and consideration of the amendments and remarks herein, which are made to address 35 USC 112 matters of form.

Claim Rejections- 35 U.S.C. 112

Claim 19 is rejected under 35 USC 112, second paragraph, as being indefinite. Claim 19 recites that the composition includes an effective amount of the mannuronic acid oligosaccharide derivatives according to claim 11 for the prophylaxis and treatment of Alzheimer's disease or for the prophylaxis and treatment of diabetes. Thus, claim 19 recites an intended use for the composition. Accordingly, claim 19 is definite.

Claims 18 and 20 are rejected under 35 USC 112, first paragraph, because the specification, while being enabling the use of the 6-mer in (1) in the treatment of type 2 diabetes, (2) the treatment of type 1 diabetes in combination with insulin or (3) the treatment of Alzheimer's disease (AD), does not reasonably provide enablement for the prevention of either type of diabetes or the prevention of AD or treatment for the full scope of oligosaccharides. Claim 18 is limited to n being 0 or an integer of 1 to 8. That is, claim 18 is limited to the mannuronic acid oligosaccharide being a 2-mer to 10-mer.

Claim 19 is directed to a pharmaceutical composition that includes an effective amount of the mannuronic acid oligosaccharide derivatives according to claim 11 for the prophylaxis and treatment of Alzheimer's disease (limitations from claim 20). As with claim 18, claim 11 is limited to n being 0 or an integer of 1 to 8, and as such, is limited to the mannuronic acid oligosaccharide being a 2-mer to 10-mer.

Applicants respectfully submit, as an Appendix, herewith supplementary experimental data establishing that shows 2-mer to 5-mer and 7-mer to 10-mer of the mannuronic acid oligosaccharide as recited in claim 11 have the same effect as the 6-mer of the mannuronic acid oligosaccharide of claim 11. Submission of the supplementary experimental data in a Rule 1.132 Declaration will follow, and for the Examiner's convenience, a copy of the experimental data is attached herewith.

As shown in the supplementary experimental data, the 2-mer to 5-mer and 7-mer to 10-mer have a binding affinity to amyloid-beta (Aβ) similar to that of the 6-mer, thereby indicating that the effects of the 2-mer to 5-mer and 7-mer to 10-mer are similar to that of the 6-mer. As indicated in the specification, the binding affinity of the 6-mer with Aβ appears to contribute to the destabilization of the Aβ fibril, and thereby hinder the whole fibrillogenetic process (see last paragraph on page 17 of Applicants' specification). The results shown in the present specification indicate that the binding affinity property of the 6-mer allows the 6-mer to act as a full Aβ cascade antagonist, and to be a therapeutic candidate for AD (Id.).

Furthermore, as indicated in the specification, type 2 diabetes also is related to the deposition of Aβ, the subsequent fibrillogenesis and increased free oxidative radicals, which give rise to the fact that inhibition of the fibril formation of Aβ becomes the perspective for the prophylaxis and treatment of diabetes (see third full paragraph on page 1 of Applicants' specification).

Given that the 6-mer has been shown to be a candidate for the treatment of AD as well as diabetes, and given that the 2-mer to 5-mer and 7-mer to 10-mer have similar binding affinity properties to amyloid-beta (Aβ) as that of the 6-mer, Applicants respectfully submit that the supplementary experimental data establish that the 2-mer to 5-mer and 7-mer to 10-mer are also candidates for the treatment of AD and diabetes. Indeed this is demonstrated for example in the supplementary experimental data reporting

binding affinity properties to amyloid-beta (Aβ), which are known to be related to the treatment of AD and diabetes(see page 1 of Applicants' specification).

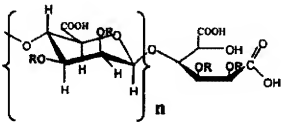
Accordingly, one of ordinary skill in the art would not require undue experimentation to implement the method of claims 18 and 20 commensurate with their scope.

Claim Rejections- 35 U.S.C. 102

Claims 11-13, 19 and 20 are rejected under 35 USC 102(a) as being anticipated by Yang et al. (Carbohyd. Polym. 2004). Applicants respectfully traverse the rejection.

The rejection contends that the priority document (CN 200410023827.0) discloses "a mannuronic acid oligosaccharide", and throughout the document, the product is referred to as "the mannuronic acid oligosaccharide" and the "the 6-mer." However, lines 1-7 on page 3 of the English translation of CN 200410023827.0, which was submitted with previous Amendment filed on August 31, 2009, refers to "a mannuronic acid oligosaccharide" with reference to the Chinese patent application 03138967.8. For the Examiner's convenience, a partial translation of Chinese patent application 03138967.8 is submitted hereto, as an Appendix.

With reference to the translation of Chinese patent application 03138967.8, the first and second paragraphs under "Content of Invention" of the partial translation of Chinese patent application 03138967.8 clearly describes "a mannuronic acid oligosaccharide" characterized in that the reduced terminal in position 1 of the mannuronic acid oligosaccharide and derivatives thereof is carboxyl radical, and having the following structure:



where n is 1-19, R is H, HSO_3, $OCCH_3$ or H_2PO_3.

The above structure corresponds to the alginate oligosaccharide derivates of claim 11 having the formula II, where n is an integer of 1 to 9 and R is H. Accordingly,

Applicants submit that there is a reasonable basis to conclude that the Chinese priority application (CN 200410023827.0) has disclosure sufficient to show that the Applicants were in possession of the claimed subject matter at the time the present Chinese priority application (CN 200410023827.0) was filed. Chinese priority application CN 200410023827.0 was filed March 24, 2004. The March 24, 2004 date is earlier than the publication date of Yang et al. Therefore, Yang et al. is not available as prior art and the rejection should be withdrawn. Applicants do not concede the correctness of the rejection.

In view of the above amendments and remarks, Applicants believe that the pending claims are in a condition for allowance. Favorable reconsideration is respectfully requested. If any questions arise regarding this communication, the Examiner is invited to contact Applicants' representative listed below.

Respectfully submitted,

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